

「CLAIMS」

CM 1. A compact portable apparatus for dispensing a
2 liquid under pressure at a substantially constant flow rate
over a period of time comprising:

4 P1 an elongated generally cylindrical support member;
L
6 elongated elastic sleeve means mounted and sealingly
secured at fixed spaced longitudinal positions on said
support member for defining a substantially zero
8 non-pressurized volume pressure reservoir for holding a
liquid in a pressurized state for dispensing therefrom;

10 P1 housing means comprising collapsible non-stretchable
housing means for containing said support member and said
12 pressure reservoir for enabling said pressure reservoir to
expand naturally and for confining said reservoir to fill
14 concentrically about said support member;

P1 inlet means for introducing a liquid into said elastic
16 pressure reservoir; and

P1 outlet means for dispensing liquid from said pressure
18 reservoir to a selected site.

2. An apparatus for dispensing a liquid under
2 pressure according to claim 1 wherein said collapsible

non-stretchable housing means comprises a substantially
4 spherical housing.

3. An apparatus for dispensing a liquid under
2 pressure according to claim 2 wherein said housing means
further comprises a generally cylindrical substantially
4 rigid housing having an open end for receiving said support
member.

4. An apparatus for dispensing a liquid under
2 pressure according to claim 2 wherein:

P1 said support member is an elongated generally
4 cylindrical mandrel mounted in said housing means and
having opposite ends exposed to the exterior of said
6 housing means, said inlet means comprises an inlet port in
one end of said mandrel, and said outlet means comprises an
8 outlet port in the other end of said mandrel; and

P1 said housing means is clamped at opposite ends thereof
10 with said elastic sleeve means around opposite ends of said
mandrel by an elastic ring.

5. An apparatus for dispensing a liquid under
2 pressure according to claim 1 wherein:

18

P1 said collapsible non-stretchable housing means is
4 substantially spherical having openings formed in opposite
ends thereof by co-extending tubular sleeves; and

6 P1 said housing means is commonly clamped at opposite
ends thereof with said elastic sleeve means around opposite
8 ends of said support member by means of an O-ring extending
around said tubular sleeves.

6. An apparatus for dispensing a liquid under
2 pressure according to claim 5 wherein said said O-rings are
each covered by a cup shaped cap removeably attached to the
4 ends of said support member.

7. An apparatus for dispensing a liquid under
2 pressure according to claim 6 wherein said housing means
further comprises a generally cylindrical substantially
4 rigid housing having an open end for receiving said support
member coaxially therein.

CLS
849
10
8. An apparatus for dispensing a liquid under
2 pressure according to claim 1 wherein:

P11 said housing means comprises a flexible
4 non-stretchable shell having a substantially spherical

central chamber with openings formed in opposite ends thereof by co-extending tubular sleeves; and

91 said housing means is secured at opposite ends thereof with said elastic sleeve means around opposite ends of said support member by means of an O-ring extending around said tubular sleeves.

11. 11 An apparatus for dispensing a liquid under pressure according to claim 10 wherein said O-rings are each covered by a cup shaped cap removeably attached to the ends of said support member.

12. 12 An apparatus for dispensing a liquid under pressure according to claim 1 wherein said housing means comprises a substantially rigid housing having an opening in one end for receiving said support member coaxially therein.

13. 13 An apparatus for dispensing a liquid under pressure according to claim 12 wherein said rigid housing has a substantially spherical configuration with a removable closure for enabling receipt of said pressure reservoir in a filled condition.

15
12. A compact collapsible infusion apparatus for
dispensing a liquid under pressure at a predetermined
substantially constant flow rate over a period of time
comprising:

P1 an elongated generally cylindrical support member
having inlet means including an inlet port in one end of
said member, and outlet means including an outlet port in
the other end of said member;

P1 elongated elastic sleeve means mounted in
non-stretched surface contact and sealingly secured at
fixed spaced longitudinal positions on said support member
for defining a substantially zero non-pressurized volume
pressure reservoir for holding a liquid in a pressurized
state for dispensing therefrom;

P1 first housing means including a collapsible shell
enclosing said support member and said pressure reservoir,
said housing having a size and shape for enabling said
pressure reservoir to expand naturally and for confining
said reservoir to fill concentrically about said support
member;

P1 inlet means in one end of said support member for
introducing a liquid into said elastic pressure reservoir;
and

24 P1 outlet means in the other end of said support member
for dispensing liquid from said pressure reservoir to a
26 selected site.

~~13.~~ ^{11. 16} An apparatus for dispensing a liquid under
2 pressure according to claim ¹⁵~~12~~ wherein:

P1 said housing means comprises a flexible
4 non-stretchable shell having a substantially spherical
central chamber with openings formed in opposite ends
6 thereof by co-extending tubular sleeves; and

P1 said housing means is secured at opposite ends thereof
8 with said elastic sleeve means around opposite ends of said
support member by means of an O-ring extending around said
10 tubular sleeves.

~~14.~~ ^{17 17} An apparatus for dispensing a liquid under
2 pressure according to claim ¹⁶~~13~~ wherein said housing means
further comprises a generally cylindrical substantially
4 rigid housing having an open end for receiving said support
member coaxially therein.

~~15.~~ ¹⁸ An apparatus for dispensing a liquid under
2 pressure according to claim ^{16 16}~~13~~ further comprising a cup

shaped cap removeably attached to each end of said support member for protectively covering said O-rings.

NP
NK
19
16. An apparatus for dispensing a liquid under pressure according to claim ¹⁸ ~~15~~ wherein said housing means comprises a substantially rigid housing having an opening in one end for receiving said support member coaxially therein.

23
17. A medical infusion kit having multiple apparatus for dispensing multiple dosages of a liquid under pressure at a substantially constant flow rate over a period of time comprising:

Pl a plurality of substantially identical collapsible infusion devices, each having a collapsible housing having a chamber for containing a pressure reservoir, an elongated generally cylindrical support member disposed in and extending through said chamber, an expansible elastic pressure reservoir mounted on said support member in said chamber for holding said liquid under pressure during dispensing thereof, said elastic pressure reservoir comprises an elastic sleeve snugly mounted over said support member in said chamber for defining a pressure reservoir for holding a liquid in a pressurized state for

16 dispensing therefrom, inlet means in one end of said
support member for introducing a liquid into said elastic
18 sleeve;

20 ^{p1} a substantially rigid housing having an open end for
removeably receiving said infusion devices coaxially
therein in a filled condition; and

22 ^{p1} outlet means in the other end of said support member
for conveying a liquid from said pressure reservoir to a
24 selected site.

²⁴
18. An infusion kit according to claim ²³ ~~17~~ wherein
2 said collapsible housing comprises a flexible
non-stretchable shell having a substantially spherical
4 central chamber with openings formed in opposite ends
thereof by co-extending tubular sleeves; and

6 ^{p1} said shell is secured at opposite ends thereof with
said elastic sleeve around opposite ends of said support
8 member by means of an O-ring extending around said tubular
sleeves.

²⁵
19. An infusion kit according to claim ²⁴ ~~18~~ further
2 comprising a cup shaped cap removeably attached to each end
of said support member for protectively covering said
4 O-rings.

26

25

20. An infusion kit according to claim ~~19~~ wherein
2 wherein said plurality of infusion devices are from five to
seven in number.

14

21. An apparatus for dispensing liquid under pressure
2 according to claim 1 wherein said housing means comprises a
substantially spherical rigid housing formed of like
4 half-shells hinged together.

8

22. An apparatus for dispensing liquid under pressure
2 according to claim 6 wherein said housing means comprises a
substantially spherical rigid housing formed of like
4 half-shells hinged together for removably receiving said
support member and elastic sleeve.

9

23. An apparatus for dispensing liquid under pressure
2 according to claim ~~22~~ ⁸ wherein said housing has openings
forming stepped recesses for receiving said caps.

20

24. An apparatus for dispensing liquid under pressure
2 according to claim ~~13~~ ¹⁶ wherein said housing means further
comprises a pair of substantially semi-spherical pivotably
4 connected half-shells forming a substantially spherical
rigid housing.

NP
NK

30

21
25. An apparatus for dispensing liquid under pressure
2 according to claim ~~24~~²⁰ wherein said housing has openings
forming stepped recesses for receiving said caps.

NP
RK
27
26. A compact portable dispensing apparatus for
2 dispensing a liquid under pressure at a substantially
constant flow rate over a period of time comprising:

4 P1 an elongated substantially cylindrical support member;
L
6 elongated elastic sleeve means mounted on and
sealingly secured at fixed spaced longitudinal positions on
said support member for defining a pressure reservoir for
8 holding a liquid in a pressurized state for dispensing
therefrom;

10 P1 housing means comprising a substantially spherical
rigid housing formed of like, half-shells hinged together
12 for removeably containing said support member and said
pressure reservoir for enabling said pressure reservoir to
14 expand naturally and for confining said reservoir to fill
concentrically about said support member;

16 P1 inlet means for introducing a liquid into said elastic
pressure reservoir; and

18 P1 outlet means for dispensing liquid from said pressure
reservoir to a selected site.

22
27. An apparatus for dispensing liquid under pressure according to claim ²⁰~~24~~ wherein said housing has openings forming stepped recesses for receiving said caps.

28. An apparatus for dispensing a liquid under pressure according to claim ²⁷~~26~~ wherein:

P1 said housing means comprises a flexible non-stretchable shell having a substantially spherical central chamber with openings formed in opposite ends thereof by co-extending tubular sleeves; and

P1 said housing means is secured at opposite ends thereof with said elastic sleeve means around opposite ends of said support member by means of an O-ring extending around said tubular sleeves.